

CLAIMS

What is claimed is:

22. A vehicle with capability of transmitting and receiving voice or data communications comprising a plurality of data packets, each remote unit having a unique identifier; whereby each remote unit includes:

- a memory for storing a unique identifier;

- a transceiver for receiving a wireless communication and downconverting said received communication from RF to baseband, and for upconverting a baseband communication to RF for transmission as a transmit wireless communication;

- a GPS receiver, for outputting a position signal;

- a microprocessor, for receiving said position signal and said downconverted communication, and for generating said baseband communication;

whereby said microprocessor generates said baseband communication by constructing said data packets from a plurality of data fields, including sender information and receiver information,

whereby said sender information includes:

- the unique identifier of the sender, and

- information derived from said position signal;

and whereby said receiver information includes:

- the address of the desired remote unit.

23. The vehicle in claim 22 wherein said receiver information includes the unique identifier of the receiver, and said microprocessor further processes only data packets having the unique identifier pertaining to its associated mobile unit.

24. The vehicle in claim 22 wherein said unique identifier of the sender further includes a plurality of data subfields used for separate identification of multiple operators of a single vehicle.

25. The vehicle in claim 24 wherein said vehicle further includes means for encrypted point-to-point or point-to-multipoint communication between remote users.

26. The vehicle in claim 22 wherein said sender information further includes fields for speed, acceleration, direction, origin and destination.

27. The vehicle in claim 22 wherein said data packets further include a transmission administration data field comprising at least one of the following subfields:

- security level information for access control;

- priority information based on urgency level of the communication;

- origin of communication either in vehicle or out of vehicle;

- broadcast type of communication based on number of users intended to receive the communication ranging from point-to-point to point-to-multipoint, voice or data type communication designation; and

- communication length based on whether the communication is contained in a single data packet or part of a multi-packet communication.

28. The vehicle in claim 22 wherein communications from non-subscribers may be received by said remote units.

29. The vehicle in claim 28 further comprising interface means with the internet.

30. The vehicle in claim 26 wherein communications from emergency and law enforcement officials may be received by said remote units.

31. The vehicle in claim 22 wherein the said microprocessor performs calculations based on said position signal, including speed acceleration and direction of vehicle motion.

32. The vehicle in claim 22 wherein data stored in said memory further includes a vehicle activity log comprising data fields for time and date of communication, and vehicle position, speed, acceleration/deceleration and direction.

33. The vehicle in claim 22 wherein said memory stores a log of vehicle communications that are continuously compiled by the microprocessor, comprising at least one of the following data fields: time of communication, date of communication, indication of incoming or outgoing communication, address or addresses of communicating entity, priority of communication, indication of whether the communication is broadcast or point-to-point; indication of whether the communicating entity is within the vehicle or outside the vehicle; security level of the communicating entity; indication of whether the communication is data or voice; indication of whether the communication is information or control; and actual contents of the communication.

34. The vehicle in claim 33 wherein said log is used to store addresses of mobile units categorized as unwanted incoming communications to be screened out by said microprocessor.

35. The vehicle in claim 22 further comprising an electro-mechanical interface to control electro mechanical systems of the vehicle.

36. The vehicle in claim 35 wherein said control is limited to authorized operators.

37. The vehicle of claim 22 wherein said memory stores a user log of information pertaining to the user and the user's vehicle comprising at least one of the following fields: vehicle registration number; vehicle insurance company and policy number; vehicle make, model and model year; vehicle color; vehicle EZpass number; user garage parking account number; user garage door access code; user driving record; and user credit card information.

38. The vehicle in claim 22 further comprising an audio-visual interface (AVI) for programming the microprocessor, downloading user specified information into the memory for control of the vehicle, viewing output display, or monitoring audio output.

39. The vehicle of claim 22 wherein said remote unit includes determining means for calculating the available time duration for communication with said other remote units based on said calculated speed and direction of remote units with respect to one another.

40. A system for transmitting voice or data communications between a plurality of remote units, wherein the system input includes the voice or data communications and user input; whereby each remote unit includes:

a transceiver configured to receive data by a wireless communication and to down-convert said received data from RF to baseband, and to up-convert baseband data to RF for transmission as a transmitted wireless communication;

a GPS receiver configured to receive a position signal;

a microprocessor configured to receive said position signal and said down-converted communication, and to generate said baseband communication; whereby said microprocessor generates said baseband communication by constructing at least one data packet from a plurality of data fields; at least one of said data fields including information derived from said position signal; and

a memory configured to store the received data and the user input having information unique to the user.

41. The system of claim 40 wherein said vehicle mobility parameters comprise speed, direction and acceleration.

42. A method for communication between mobile units installed in a plurality of vehicles without a GPS receiver, wherein said mobile units are tuned to a common frequency and whereby said mobile units have means for sensing other mobile units in the vicinity, said method comprising the steps:

detecting by a first mobile unit the presence of second through n^{th} mobile units within an effective range for communication;

notifying first through n^{th} mobile units of each others' presence; and commencing hands free communication.